REMARKS/ARGUMENTS

Claims 13, 15, 28, 30, 33, 38, 39, and 51-56 are amended, and claims 58-76 are newly added. Claims 1-12, 14, 16-27, 29, 31, 32, 34-36, 41-50, and 57 are canceled. Claims 13, 15, 28, 30, 33, 37-40, 51-56, and 58-76 are now pending in the Application. Applicants respectfully request reexamination and reconsideration of the application.

Claims 13-15, 20, 21, 28-30, 33-40, and 51-57 were rejected under 35 USC § 103(a) as obvious in view of US Patent No. 5,690,270 to Gore ("Gore"); US Patent No. 5,624,268 to Maeda ("Maeda"), US Patent No. 4,239,312 to Myer ("Myer"), US Patent No. 5,475,317 to Smith ("Smith"), US Patent No. 6,114,240 to Akram ("Akram"), US Patent No. 5,067,007 to Kanji ("Kanji"), US Patent No. 4,509,099 to Takamatsu ("Takamatsu"), US Patent No. 4,202,588 to Dalamangas ("Dalamangas"), and Figures 1, 2A, 2B, 2C, 3A, 3B, and 4 of this application's specification (hereinafter "APA"). In addition, claims 13-15, 33-40, and 51-57 were rejected under 35 USC § 103(a) as obvious in view of US Patent No. 5,030,109 to Dery ("Dery"), US Patent No. 4,988,306 to Hopfer ("Hopfer"), US Patent No. 4,029,375 to Gabrielian ("Gabrielian"), Dalamangas, and Takamatsu. Claims 13-15, 20, 21, 28, 29, 33-40, and 51-57 were also rejected under 35 USC § 103(a) as obvious in view of Myer, Takamatsu, and US Patent No. 3,842,189 to Southgate ("Southgate"). Applicants respectfully traverse these rejections.

Turning first to independent claim 33, that claim is directed to a "method for forming stop structures on a plurality of semiconductor dies." The method includes steps of forming openings in a sheet, applying the sheet to an unsingulated semiconductor wafer, and disposing resilient, elongate contact elements on the dies of the wafer within the openings in the sheet. The sheet functions as a stop structure on the dies. For example, the stop structure limits the compression of each of the resilient, elongate contact elements while those elements are pressed against another electronic component. The prior art of record fails to teach or suggest such a method. For example, none of the references relied on in rejecting the claims teaches or suggests forming stop structures on dies by applying a sheet to an unsingulated wafer and disposing resilient, elongate contact elements on the dies in openings in the sheet.

In Gore, cavity 706 is formed in a layer 702 of a printed circuit board 700; layer 702 is not applied to an unsingulated semiconductor wafer to provide stop structures for the dies of the

wafer as required by claim 33. Likewise, Dery discloses nothing more than mounting a surface mount package ("SMP") chip 12 to printed circuit boards 22 and 24. Similarly, although Myer refers to elements 52 and 54 as wafers, elements 52 and 54 are not unsingulated wafers comprising dies as described in claim 33. Moreover, neither of spacers 58 in Myers is part of a sheet applied to element 52 or 54. The remaining references cited in the Office Action—Maeda, Smith, Akram, Kanji, Takamatsu, Dalamangas, APA, Hopfer, and Gabrielian—likewise fail to teach or suggest the method of claim 33. Therefore, claim 33 is patentable over the prior art of record.

Moreover, it should be apparent that the differences between claim 33 and the prior art of record are not trivial but provide advantages not found in the prior art. For example, unlike the prior art, claim 33 provides an efficient method for forming stop structures on the sometimes hundreds of dies of an unsingulated semiconductor wafer. The method is more efficient than the prior art because all of the dies on the wafer may be processed together. That is, the stop structures may be simultaneously made on all of the dies at once. When the dies are singulated from the wafer, the sheet material that forms the stop structures is singulated along with the dies, leaving individual dies with their own stop structures. The prior art provides no such advantage. Therefore, claim 33 is not a mere obvious variation of the prior art but is a patentable improvement over the prior art.

Independent claim 51, which is also directed to a method, comprises steps that include applying a sheet to an unsingulated semiconductor wafer and forming contact elements on the dies in openings in the sheet. Again, the sheet functions as a stop structure on the dies. Independent claims 13 and 28 are directed to an "interconnect assembly" comprising a semiconductor wafer comprising dies, contact elements disposed on the dies, and a sheet disposed on the wafer with openings for the contact elements. Like claims 33 and 51, the sheet functions as a stop structure on the dies. As discussed above with respect to claim 33, none of the prior art of record teaches or suggests a sheet applied to an unsingulated wafer to form stop structures for the dies of the wafer. Therefore, independent claims 13, 28, and 51 also patentably distinguish over the prior art of record.

Claims 15, 30, 37-40, 52-56, and 58-76 depend from one of claims 13, 28, 33, or 51 and are therefore patentable for the same reasons as claims 13, 28, 33, and 51. In addition, claims 15, 30, 37-40, 52-56, and 58-76 recite additional features that further distinguish over the prior art of

record. For example, claims 59, 63, and 70 state that the sheet hermetically seals the dies of the wafer. As another example, claims 61, 65, and 71 state that the sheet comprises "a plurality of perimeter structures, each said perimeter structure disposed about a perimeter of one of said dies" and "a web structure interconnecting said plurality of perimeter structures." As yet another example, claims 72, 73, and 74 include the step of singulating the wafer into individual dies. Dependent claims 15, 30, 37-40, 52-56, and 58-76 therefore further distinguish over the prior art of record.

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

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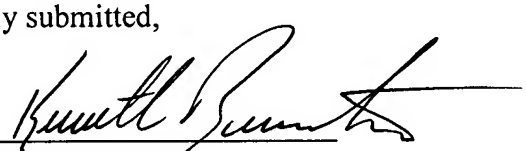
By 
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